Exhibit F

U.S. Patent No. 7,746,798 ("'798 Patent")

Accused Products

Lenovo products (laptops, desktops, monitors, and docking stations) made, used, sold, offered for sale, or imported into the United States by Lenovo that support USB 3.0 and later, such as the ThinkVision Ml4t USB-C Mobile Monitor, ThinkStation P620 Workstation, ThinkPad T14 Gen 3 Laptop, and Legion 7 Gen 6 & 7 Gaming Laptop ("Accused Products"), infringe at least Claim 19 of the '798 Patent without limitation.

Claim 19

Claim 19	Exemplary Infringement Evidence
[19pre] A communications device for transmitting packet types of packets, comprising:	To the extent the preamble is limiting, each Accused Product comprises a communications device for transmitting packet types of packets. For example, the exemplary Lenovo ThinkPad T14 Gen 3 Laptop comprises a communications device for transmitting packet types of packets. For example, the exemplary Lenovo ThinkPad T14 Gen 3 Laptop with USB 3.2 transmits the HPSTART, DPPSTART, and LCSTART framing symbol sets for HP (Header Packet), DPP (Data Packet Payload), and link command packets in a data stream transmitted by a transmitting USB-C device over a USB 3.x cable, such as a USB-C or USB-A cable. *See, e.g.*: ThinkPad T14 Gen 3 (14" AMD) Laptop ★★★★½ 4.4 (186)

Claim 19	Exemplary Infringement Evidence
	

Claim 19	Exemplary Infringement Evidence
	Ports / Slots • 2 x USB-C 3.2 Gen 2 • 2 x USB-A 3.2 Gen 1 (1 Always on) • HDMI 2.0b • Headphone / mic combo • RJ45 • SIM https://www.lenovo.com/us/en/p/laptops/thinkpad/thinkpadt/thinkpad-t14-gen-3-(14-inch-amd)/len101t0013#tech_specs **USB 3.2 Specification** **Language Usage Guidelines from USB-IF**

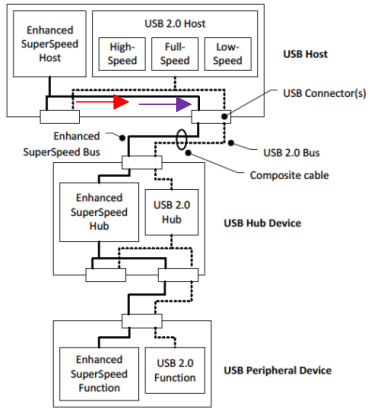
Claim 19	Exemplary Infringement Evidence

	USB 3.2 Specification
	The USB 3.2 specification defines multi-lane operation for new USB 3.2 hosts and devices, allowing for up to two lanes of 10Gbps operation to realize a 20Gbps data transfer rate. While USB hosts and devices were originally designed as single-lane solutions, USB Type-C® cables were designed from the outset to support multi-lane operation to ensure a path for scalable performance.
	
	The USB 3.2 specification absorbed all prior 3.x specifications. USB 3.2 identifies three transfer rates, USB 3.2 Gen 1 at 5Gbps, USB 3.2 Gen 2 at 10Gbps and USB 3.2 Gen 2x2 at 20Gbps. It is important that vendors clearly communicate the performance signaling that a product delivers in the product's packaging, advertising content, and any other marketing materials.
	
	• Marketing name: **SuperSpeed USB 5Gbps**
	  ○ Product capability: product signals at 5Gbps
	• Marketing name: **SuperSpeed USB 10Gbps**
	  ○ Product capability: product signals at 10Gbps
	• Marketing name: **SuperSpeed USB 20Gbps**
	  ○ Product capability: product signals at 20Gbps
	
	https://www.usb.org/sites/default/files/USB_3_2_Language_Product_and_Packaging_Guidelines_FINAL.pdf

[19a] an identification component that identifies a packet type of a packet of symbols; and	Each Accused Product includes an identification component that identifies a packet type of a packet of symbols. For example, USB 3.2 Link Layer identifies HP (Header Packet), DPP (Data Packet Payload), and link command packets using the HPSTART, DPPSTART, and LCSTART framing symbol sets in a data stream. *See, e.g.*:

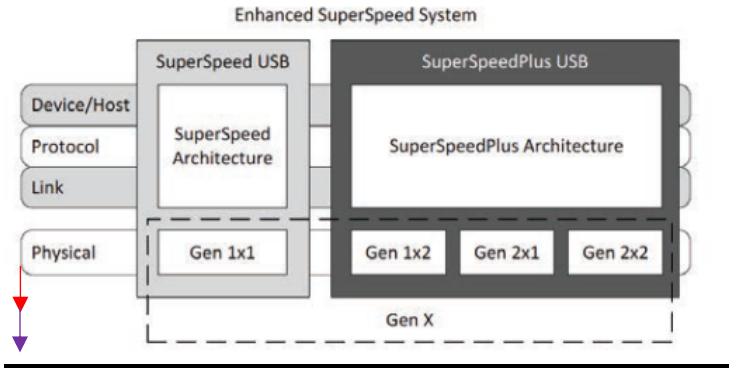
Claim 19	Exemplary Infringement Evidence

Figure 3-1. USB 3.2 Dual Bus System Architecture



See USB 3.2 Specification, Figure 3-1, pg.16; *see also* USB 3.1 Specification, Figure 3-1, page 3-2.

Figure 3-2. USB 3.2 Terminology Reference Model

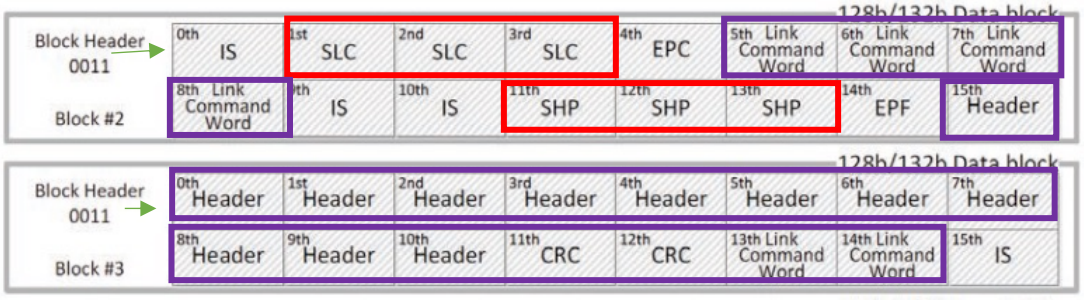


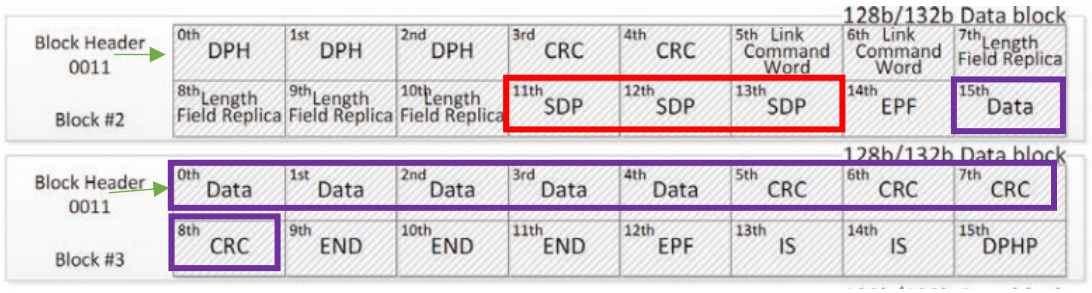
See USB 3.2 Specification, Figure 3-2, pg.19; *see also* USB 3.1 Specification, Figure 3-3, pg. 3-5.

Claim 19	Exemplary Infringement Evidence
	"Enhanced SuperSpeed Bus Data Flow Models…Data and control exchanges between the host and devices are via sets of either unidirectional or bi-directional pipes." *See* USB 3.2 Specification, Section 3-3, pg. 31; *see also* USB 3.1 Specification, Section 3.3, pg. 3-16. "The nominal signaling data rate for Gen 1 Physical layer is 5 Gbps. …The bitstream is recovered from the differential sublink by the receiver, assembled into 10-bit symbols, decoded and descrambled, producing 8-bit data that is then sent to the link layer for further processing." *See* USB 3.2 Specification, Section 3.2.1.1, pg.21; *see also* USB 3.1 Specification, Section 3.2.1.1, pg. 3-7. " The nominal signaling data rate for the Gen 2 physical layer is 10Gbps. …The bitstream is recovered from the electrical interconnect by the receiver and then assembled and aligned into 132-bit blocks. The data is descrambled, and the identifier information and the descrambled bits are passed onto the link layer for further processing." *See* USB 3.2 Specification, Section 3.2.1.2, pg.21; *see also* USB 3.1 Specification, Section 3.2.1.2, pg. 3-7. "…For Gen 1 operation, the transmitter encodes data and control characters into symbols. Control symbols are used to achieve byte alignment and are used for framing data and managing the link.

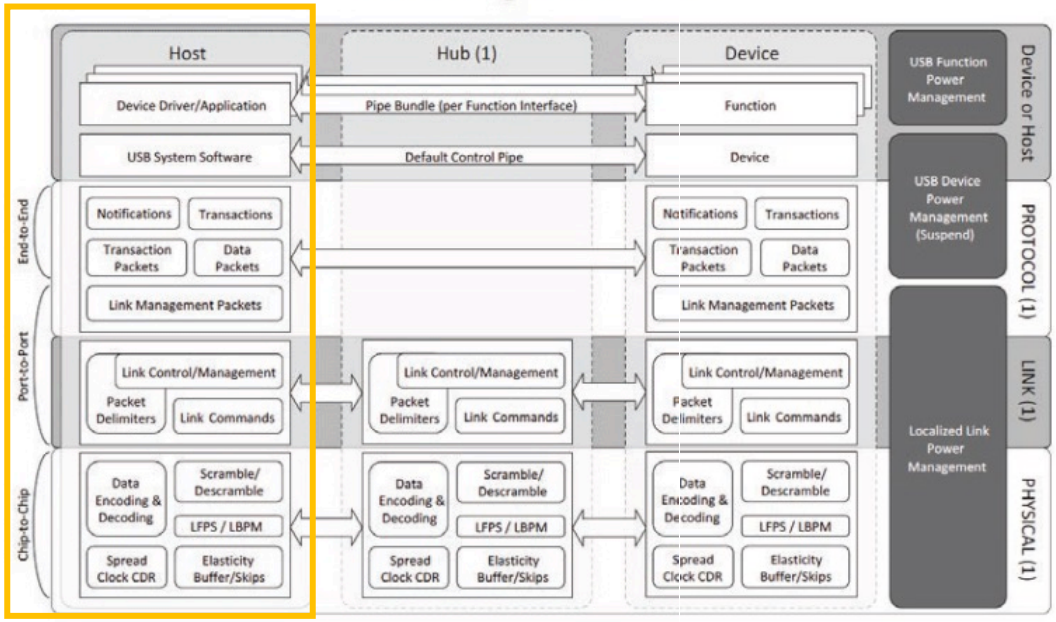
Claim 19	Exemplary Infringement Evidence
	Special characteristics make control symbols uniquely identifiable from data symbols. For Gen 2 operation, the transmitter block encodes the data and control bytes…" *See* USB 3.2 Specification, Section 3.2.1., pg.21; *see also* USB 3.1 Specification, Section 3.2.1, pg. 3-7. "In Gen 1 operation, all header packets are 20 symbols long, as is formatted in Figure 7-3.This includes LMPs [Link Management Packets], TPs [Transaction Packets], ITPs [Isochronous Timestamp Packets], and DPHs [Dta Packet Header].A header packet consists of three parts, a header packet framing, a packet header, and a Link Control Word. In Gen2 operation, all header packets except for non-deferred DPH are the same as Gen1 operation…" *See* USB 3.2 Specification, Section 7.2.1.1, pg.114; *see also* USB 3.1 Specification, Section 7.2.1.1, pg. 7-3. "Header packet framing, HPSTART ordered set, is a four-symbol header packet starting frame ordered set. Gen1 operation is defined as three consecutive k symbols of SHP followed by a single K-symbol of EPF. In Gen2 operation, HPSTART ordered set is the framing ordered set for all header packets except for non-deferred DPH and is defined as three consecutive symbols of SHP followed by a single symbol of EPF…" *See* USB 3.2 Specification, Section 7.2.1.1, pg.114; *see also* USB 3.1 Specification, Section 7.2.1.1.1, pg. 7-3.

Claim 19	Exemplary Infringement Evidence
	"Data packets are a special type of packet consisting of a Data Packet Header (DPH) and a Data Packet Payload (DPP)… The DPP consists of a data packet payload framing and a variable length of data followed by 4 bytes of CRC-32…" *See* USB 3.2 Specification, Section 7.2.1.2, pg.118; *see also* USB 3.1 Specification, Section 7.2.1.2, pg. 7-8. "DPP framing ordered sets consist of a starting framing ordered set called DPPSTART OS, and …ending framing ordered sets called DPPEND OS… a DPPSTART ordered set, which is a DPP starting frame ordered set, consists of three consecutive symbols of SDP followed by a single symbol of EPF…" *See* USB 3.2 Specification, Section 7.2.1.2.1, pg.118; *see also* USB 3.1 Specification, Section 7.2.1.2.1, pg. 7-8. "Link commands are used for link-level data integrity, flow control, and link power management. Link commands are a fixed length of eight symbols and contain repeated symbols to increase the error tolerance…" *See* USB 3.2 Specification, Section 7.2.2, pg.122; *see also* USB 3.1 Specification, Section 7.2.2, pg. 7-12. "Link commands shall be eight symbols long… The first four symbols, LCSTART, are the link command starting frame ordered set consisting of three consecutive SLCs followed by EPF. The second four symbols consist of a two-symbol link command word and its replica…"

Claim 19	Exemplary Infringement Evidence
	See USB 3.2 Specification, Section 7.2.2.1, pg.122; *see also* USB 3.1 Specification, Section 7.2.2.1, pg. 7-12. "The link-layer also: • Provides correct framing of sequences of bytes into packets during transmission; e.g., insertion of packet delimiters • Detects received packets, including packet delimiters and error checks of received header packets (for reliable delivery) • Provides an appropriate interface to the protocol layer for pass-through of protocol layer packet information exchanges." *See* USB 3.2 Specification, Section 3.2.2, pgs. 22-23; *see also* USB 3.1 Specification, Section 3.2.2, pg. 3-8.  *See* USB 3.2 Specification, Figure D-3, pg.482; *see also* USB 3.1 Specification, Figure D-3, pg. D-2.

Claim 19	Exemplary Infringement Evidence
	 *See* USB 3.2 Specification, Figure D-3, pg.483; *see also* USB 3.1 Specification, Figure D-3, pg. D-2.
[19b] a transmission component that transmits a synchronization symbol that corresponds to the identified packet type, the transmitted synchronization symbol providing synchronization information and each packet type having a different synchronization symbol	Each Accused Product includes a transmission component that transmits a synchronization symbol that corresponds to the identified packet type, the transmitted synchronization symbol providing synchronization information and each packet type having a different synchronization symbol. For example, the Physical layer of the transmitting USB-C device transmits the HPSTART, DPPSTART, or LCSTART framing symbol set that corresponds to the identified packet type. Each framing symbol set comprises a defined sequence of synchronization codes that are different from the defined sequence of synchronization codes of any other framing symbol set. For example, the SLC, SHP, and SDP are each synchronization symbols that correspond to different packet types. *See, e.g.*:

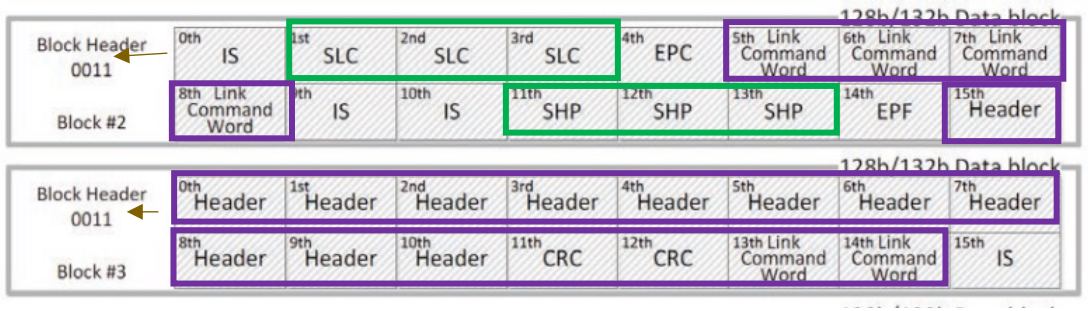
Claim 19	Exemplary Infringement Evidence
	"A Gen1 transmitter encodes data and control characters into symbols using an 8b/10b code… It then encodes the scrambled 8-bit data into 10-bit symbols for transmission over the physical connection… The bitstream is recovered from the differential sublink by the receiver, assembled into 10-bit symbols, decoded and descrambled, producing 8-bit data that is then sent to the link layer for further processing." *See* USB 3.2 Specification, Section 3.2.1.1, pg. 21; *see also* USB 3.1 Specification, Section 3.2.1.1, pg. 3-7. "A Gen 2 Transmitter frames data and control bytes (referred to as symbols) by prepending a 4-bit block identifier to 16 symbols (128 bits) to create a 128b/132b block…As in Gen1 operation, the resultant data are sent out across the electrical interconnect using spread spectrum clocking to lower EMI emissions. The Bitstream is recovered from the electrical interconnect by the receiver and then assembled and aligned into 132-bit blocks. The data is descrambled, and the identifier information and the descrambled bits are passed onto the link layer for further processing." *See* USB 3.2 Specification, Section 3.2.1.2, pg. 21; *see also* USB 3.1 Specification, Section 3.2.1.2, pg. 3-7.

Claim 19	Exemplary Infringement Evidence
	Figure 3-3. Enhanced SuperSpeed Bus Communications Layers and Power Management Elements  *See* USB 3.2 Specification, Figure 3-3, pg.122; *see also* USB 3.1 Specification, Figure 3-4, pg. 3-6. "... For Gen1 operation, the transmitter encodes data and control characters into symbols. Control symbols are used to achieve byte alignment and are used for framing data and managing the link. Special characteristics make control symbols uniquely identifiable from data symbols. For Gen2 operation, the transmitter block encodes the data and control bytes…" *See* USB 3.2 Specification, Section 3.2.1, pg.21; *see also* USB 3.1 Specification, Section 3.2.1, pg. 3-7.

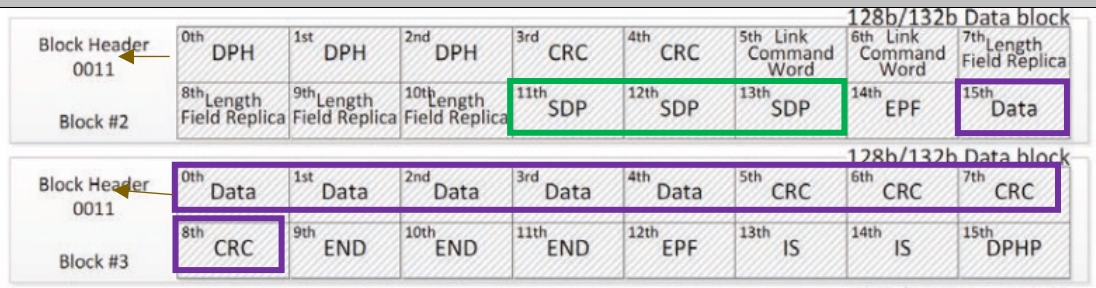
Claim 19	Exemplary Infringement Evidence
	"The [Gen 1] 8b/10b encoding scheme provides Special symbols that are distinct from the Data symbols used to represent characters. These special symbols are used for various Link Management mechanisms described later. Table 6-2 lists the special symbols used and provides a brief description for each… For Gen2 [128b/132b] operation, the block header identifies whether the following 16 symbols have special meaning or represent data. In Gen 2 operation, a receiver shall always perform single bit error correction on the special symbols part of a control block. For Gen1 and Gen2, the following special symbols are defined." *See* USB 3.2 Specification, Section 6.3.3, pg.63; *see also* USB 3.1 Specification, Section 6.3.3, pg. 6-12.

Table 6-2. Special Symbols

Symbol	Name	Gen 1 Symbol	Gen 2 Symbol	Description
SKP	Skip	K28.1	CCh	Compensates for different bit rates between two communicating ports. SKPs may be dynamically inserted or removed from the data stream. For Gen 2 operation, unscrambled.
SKPEND	Skip End	Not applicable	33h	Marks the boundary between SKP symbols and the remainder of the SKP OS. Unscrambled.
SDP	Start Data Packet	K28.2	96h	Marks the start of a Data Packet Payload. For Gen 2 operation, scrambled and transmitted only in data block.
EDB	End Bad	K28.3	69h	Marks the end of a nullified Packet. For Gen 2 operation, scrambled and transmitted only in data block.
SUB	Decode Error Substitution	K28.4	Not applicable	Symbol substituted by the 8b/10b decoder when a Decode error is detected.
COM	Comma	K28.5	Not applicable	Used for symbol alignment.
-----	-----	K28.6	Not applicable	Reserved
SHP	Start Header Packet	K27.7	9Ah	Marks the start of a Data Packet (Gen 1 operation only), Transaction Packet or Link Management Packet. For Gen 2 operation, scrambled and transmitted only in data block.
DPHP	Start Data Packet Header	Not applicable	95h	Marks the start of a Data Packet (Gen 2 only). Scrambled and transmitted only in data block.
END	End	K29.7	65h	Marks the end of a packet. For Gen 2 operation, scrambled and transmitted only in data block.
SLC	Start Link Command	K30.7	4Bh	Marks the start of a Link Command. For Gen 2 operation, scrambled and transmitted only in data block.
EPF	End Packet Framing	K23.7	36h	Marks the end of a packet framing. For Gen 2 operation, scrambled and transmitted only in data block.
SDS	Start of Data Stream	Not applicable	E1h	Marks the start of an SDS Ordered Set. Unscrambled.

Claim 19	Exemplary Infringement Evidence
	See USB 3.2 Specification, Table 6-2, pg.63; *see also* USB 3.1 Specification, Table 6-1, pg. 6-12. "The link layer also: • Provides correct framing of sequences of bytes into packets during transmission; e.g., insertion of packet delimiters • Detects received packets, including packet delimiters and error checks of received header packets (for reliable delivery) • Provides an appropriate interface to the protocol layer for pass-through of protocol layer packet information exchanges." *See* USB 3.2 Specification, Section 3.2.2, pgs. 22-23; *see also* USB 3.1 Specification, Section 3.2.2, pg. 3-8.  *See* USB 3.2 Specification, Figure D-3, pg.482; *see also* USB 3.1 Specification, Figure D-3, pg. D-2.

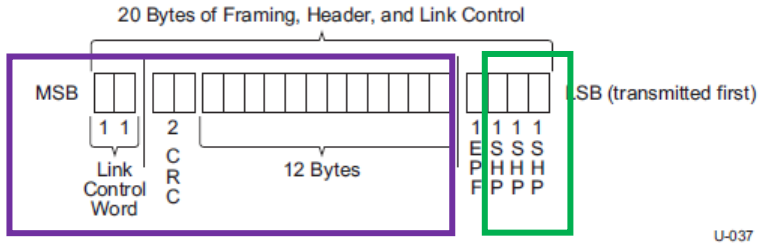
Claim 19	Exemplary Infringement Evidence



See USB 3.2 Specification, Figure D-3, pg.483; *see also* USB 3.1 Specification, Figure D-3, pg. D-2.

7.2.1.1.1 Header Packet Framing

Header packet framing, HPSTART ordered set, is a four-symbol header packet starting frame ordered set based on K-symbols. It is defined as three consecutive symbols of SHP followed by a K-symbol of EPF. A header packet shall always begin with HPSTART ordered set. The construction of the header packet framing is to achieve one symbol error tolerance.



See USB 3.2 Specification, Figure 7-3, pg.115; *see also* USB 3.1 Specification, Figure 7-3, pg. 7-4.

Claim 19	Exemplary Infringement Evidence

7.2.1.2.1 Data Packet Payload Framing

DPP framing consists of eight K-symbols, a four-symbol DPP starting frame ordered set and a four-symbol DPP ending frame ordered set. As indicated by Figure 7-8, a DPPSTART ordered set, which is a DPP starting frame ordered set, consists of three consecutive K-symbols of SDP followed by a single K-symbol of EPF. A DPP ending frame ordered set has two different types. The first type, DPPEND ordered set, is a DPP ending frame ordered set which consists of three consecutive K-symbol of END followed by a single K-symbol of EPF. The second type, DPPABORT ordered set, is a DPP aborting frame ordered set which consists of three consecutive K-symbol of EDB (end of nullified packet) followed by a single K-symbol of EPF. The DPPEND ordered set is used to indicate a normal ending of a complete DPP. The DPPABORT ordered set is used to indicate an abnormal ending of a DPP.

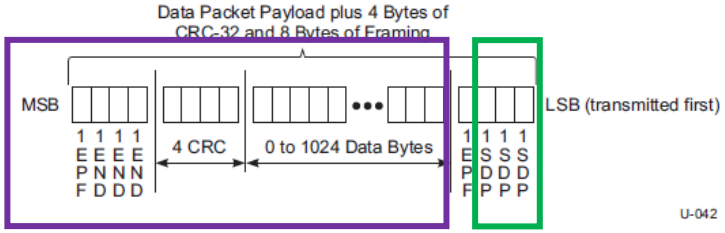
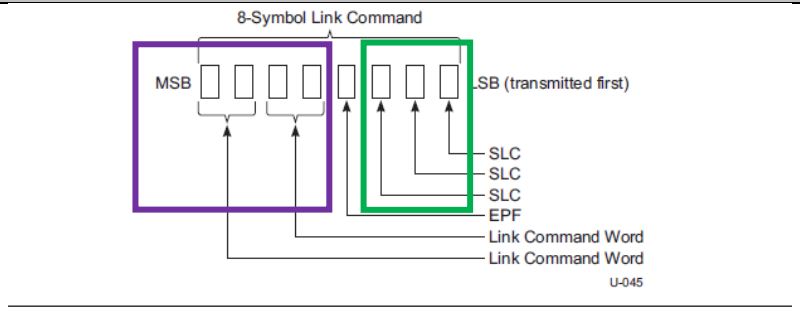


Figure 7-8. Data Packet Payload with CRC-32 and Framing

See USB 3.2 Specification, Figure 7-8, pg.119; *see also* USB 3.1 Specification, Figure 7-8, pg. 7-8.

Claim 19	Exemplary Infringement Evidence
	 **Figure 7-11. Link Command Structure** *See* USB 3.2 Specification, Figure 7-11, pg.122; *see also* USB 3.1 Specification, Figure 7-12, pg 7-12.
[19c] and permitting an external receiving node to properly align with a synchronization primitive to be correctly aligned on a symbol boundary, and that transmits the symbols of the packet.	Each Accused Product includes a transmission component that transmits a synchronization symbol that corresponds to the identified packet type, the transmitted synchronization symbol providing synchronization information and each packet type having a different synchronization symbol and permitting an external receiving node to properly align with a synchronization primitive to be correctly aligned on a symbol boundary, and that transmits the symbols of the packet. For example, the transmitted synchronization symbol permits an external receiving node to align with a synchronization primitive (e.g. Training Sequence TS1/TS2), so that the received symbol (and packet) is correctly aligned on the symbol boundary. *See, e.g.*: "The receiver needs to reliably recover clock and data from the bit stream. For Gen1 operation, the transmitter encodes data and control characters into symbols. Control symbols are used to achieve byte alignment and are used for framing data and managing the link. Special characteristics make

Claim 19	Exemplary Infringement Evidence
	control symbols uniquely identifiable from data symbols. For Gen2 operation, the transmitter block encodes the data and control bytes…" *See* USB 3.2 Specification, Section 3.2.1, pg.21; *see also* USB 3.1 Specification, Section 3.2.1, pg. 3-7. "The link layer also: • Provides correct framing of sequences of bytes into packets during transmission; e.g., insertion of packet delimiters • Detects received packets, including packet delimiters and error checks of received header packets (for reliable delivery) • Provides an appropriate interface to the protocol layer for pass-through of protocol layer packet information exchanges." *See* USB 3.2 Specification, Section 3.2.2, pgs. 22-23; *see also* USB 3.1 Specification, Section 3.2.2, pg. 3-8. "6.3.3 Special Symbols for Framing and Link Management The 8b/10b encoding scheme provides Special Symbols that are distinct from the Data Symbols used to represent characters. These Special Symbols are used for various Link Management mechanisms described later. Table 6-2 lists the Special Symbols used and provides a brief description for each. Special Symbols shall follow the proper 8b/10b disparity rules. The compliance tests are defined in the USB SuperSpeed Compliance Methodology white paper. For Gen 2 operation the block header identifies whether the following 16 symbols have special meaning or if they represent data. In Gen 2 operation a receiver shall always perform single bit error correction on the special symbols when they are part of a control block. For Gen 1 and Gen 2 the following special symbols are defined.

Table 6-2. Special Symbols

Symbol	Name	Gen 1 Symbol	Gen 2 Symbol	Description
SKP	Skip	K28.1	CCh	Compensates for different bit rates between two communicating ports. SKPs may be dynamically inserted or removed from the data stream. For Gen 2 operation, unscrambled.
SKPEND	Skip End	Not applicable	33h	Marks the boundary between SKP symbols and the remainder of the SKP OS. Unscrambled.
SDP	Start Data Packet	K28.2	96h	Marks the start of a Data Packet Payload. For Gen 2 operation, scrambled and transmitted only in data block.
EDB	End Bad	K28.3	69h	Marks the end of a nullified Packet. For Gen 2 operation, scrambled and transmitted only in data block.
SUB	Decode Error Substitution	K28.4	Not applicable	Symbol substituted by the 8b/10b decoder when a Decode error is detected.
COM	Comma	K28.5	Not applicable	Used for symbol alignment.
-----	-----	K28.6	Not applicable	Reserved
SHP	Start Header Packet	K27.7	9Ah	Marks the start of a Data Packet (Gen 1 operation only), Transaction Packet or Link Management Packet. For Gen 2 operation, scrambled and transmitted only in data block.
DPHP	Start Data Packet Header	Not applicable	95h	Marks the start of a Data Packet (Gen 2 only). Scrambled and transmitted only in data block.
END	End	K29.7	65h	Marks the end of a packet. For Gen 2 operation, scrambled and transmitted only in data block.
SLC	Start Link Command	K30.7	4Bh	Marks the start of a Link Command. For Gen 2 operation, scrambled and transmitted only in data block.
EPF	End Packet Framing	K23.7	36h	Marks the end of a packet framing. For Gen 2 operation, scrambled and transmitted only in data block.
SDS	Start of Data Stream	Not applicable	E1h	Marks the start of an SDS Ordered Set. Unscrambled.

Claim 19	Exemplary Infringement Evidence
	See USB 3.2 Specification, Section 6.3.3, pg.62-63; *see also* USB 3.1 Specification, Table 6-1, pg. 6-12. "6.4. Link Training 6.4.1.1 Gen 1 Operation This section defines the sequences that are used for configuration and initialization . The sequences are used by the Initialization State Machine (refer to Chapter 7) for the following functions: • Configuring and initializing the link • Bit-lock and symbol lock • Rx equalization training • Lane polarity inversion Training sequences are composed of Ordered Sets used for initializing bit alignment, Symbol alignment and optimizing the equalization. Training sequence Ordered Sets are never scrambled but are always 8b/10b encoded." "6.4.1.1.1 Normative Training Sequence Rules for Gen 1 Operation Training sequences are composed of Ordered Sets used for initializing bit alignment, symbol alignment, and receiver equalization."

Claim 19	Exemplary Infringement Evidence

Table 6-4. Gen 1 TS1 Ordered Set

Symbol Number	Encoded Values	Description
0-3	K28.5	COM (Comma)
4	D0.0	Reserved for future use
5	See Table 6-6	Link Functionality
6-15	D10.2	TS1 Identifier

Table 6-5. Gen 1 TS2 Ordered Set

Symbol Number	Encoded Values	Description
0-3	K28.5	COM (Comma)
4	D0.0	Reserved
5	See Table 6-6	Link Functionality
6-15	D5.2	TS2 Identifier

See USB 3.2 Specification, Section 6.4.1.1, pg.64-65; *see also* USB 3.1 Specification, Table 6-1, pg. 6-12.

Claim 19	Exemplary Infringement Evidence
	"6.4.1.2 Gen 2 Operation This section defines the sequences that are used for configuration and initialization of a link operating at Gen 2 rates. The sequences are used by the Initialization State Machine (refer to Chapter 7) for the following functions: • Configuring and initializing the link • Bit-lock and symbol lock • Rx equalization training • Lane polarity inversion • Block alignment Training sequences are composed of Ordered Sets used for initializing bit alignment, Symbol alignment, block alignment and optimizing the equalization."

Claim 19	Exemplary Infringement Evidence

Table 6-7. Gen 2 TS1 Ordered Set

Symbol Number	Symbol	Description
0-3	1Eh	TS1 Identifier
4	00h	Reserved for future use
5	See Table 6-6	Link Functionality
6-13	1Eh	TS1 Identifier
14-15	TS1 Identifier (1Eh) or a DC Balance Symbol	TS1 Identifier or DC balance

Table 6-8. Gen 2 TS2 Ordered Set

Symbol Number	Symbol	Description
0-3	2Dh	TS2 Identifier
4	00h	Reserved for future use
5	See Table 6-6	Link Functionality
6-13	2Dh	TS2 Identifier
14-15	TS2 Identifier (2Dh) or a DC Balance Symbol	TS2 Identifier or DC balance

See USB 3.2 Specification, Section 6.4.1.2, pg.67-68.